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(54) **Customization schemes for content presentation in a device with converged functionality**

(57) Schemes are described for customization of content presentation relating to a Digital Versatile/Video Disc source, which source is preferably integrated into a convergence device system. A user preferences or settings database is provided that is automatically maintained or supported by a computer subsystem, wherein

records containing user preference values are indexed to a DVD title or volume having an identity tag. Changed values are also stored and applied during the next playback of the title. The present invention also provides a censor block database structure containing individualized viewing sequences from a title for different users with different levels of censorship.

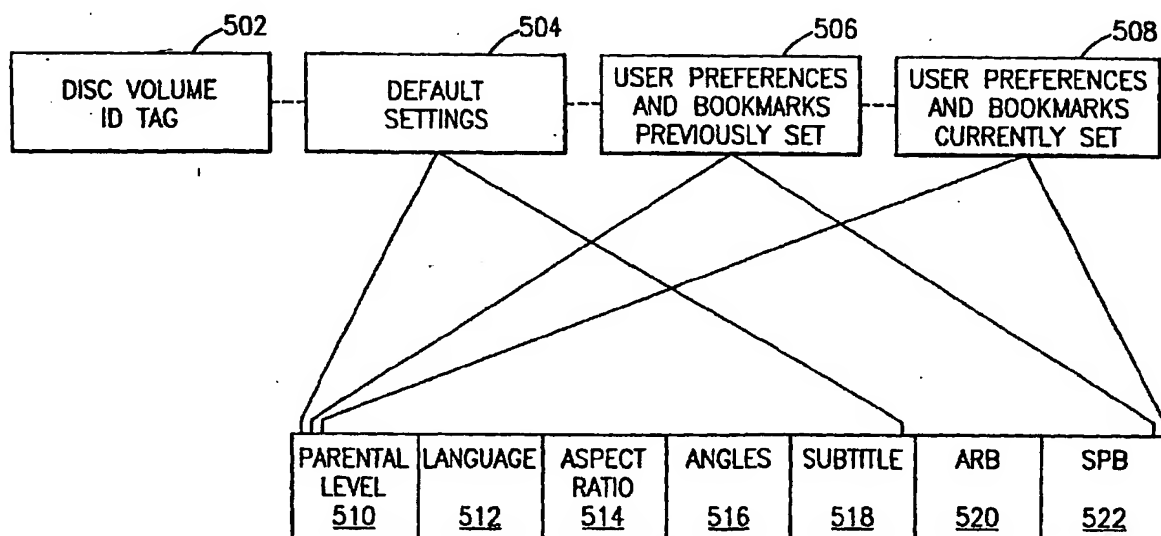


FIG. 5

Description

[0001] The present invention relates to content customization schemes usable in devices with integrated multiple functional modalities, which devices can operate, for example, with a host of video sources. More particularly, the present invention is drawn to schemes for individualized content censoring and for setting various user preferences to customize content presentation in a convergence device system having a Digital Versatile/Video Disc (DVD) source.

[0002] Achieving convergence of various information, entertainment and communications technologies has become a much sought-after goal. A highly visible example of this trend is the attempt to integrate computer technologies (such as, for example, personal computer technologies) with consumer/home electronics technologies (such as, for example, television technologies, video game technologies, video telephony, video/laser disc technologies, et cetera). It is hoped that one of the products of this convergence will be a single integrated device for information, entertainment and communications, which device can, at least in part, utilize the available communications bandwidth, mass storage and graphics handling capabilities of the personal computer (PC) to deliver, store and display a variety of applications so as to provide a seamlessly unified audio-visual environment to consumers.

[0003] In spite of many recent advances in this area, several problems persist. One of the more significant problems is the difficulty of providing to a consumer (alternatively, a user or viewer) means for effective content control and engaging interactivity, preferably all in one machine, with the option of selectable content customization. It can be readily appreciated by those skilled in the art that the need to address and obviate this problem is especially pronounced in cases wherein currently available advanced storage technologies such as, for example, the Digital Versatile/Video Disc (DVD) technology, are integrated with a highly converged device that offers multiple modes of "functionalities." In simple terms, there are so many factors involved that providing easy but effective control is difficult in highly converged devices. Our co-pending European patent application, publication no. EP-A-0869447, entitled "DEVICE WITH CONVERGED FUNCTIONALITY" describes subject matter related to such a highly converged device in greater detail.

[0004] Because the teachings of the present invention are exemplified in relation to various aspects of DVD technology, particularly when integrated with a convergence device, a brief description thereof is deemed appropriate and is provided immediately hereinbelow.

[0005] The DVD technology is an advanced, digital storage technology for video, audio, data, and any combination thereof, and is centred around a new medium (a laser-readable disc) capable of storing up to about 17 Gigabytes of information. As is known in the art, the co-

pious amount of digital information is provided on the disc in accordance with a standardized format. Analogous to current consumer electronics formats, it is useful to visualize the DVD format technology as a total system that comprises a mastering facility, a physical storage/distribution medium (the disc itself) and a player. The mastering process may typically comprise several steps which include inserting various codes for controlling the presentation of video/audio information (also known as content); compressing the raw video information into a known format (for example, the Motion Picture Experts Group - 2, or, MPEG-2, format) using a process called variable bit rate encoding; compressing the audio information also into a known format such as, for example, the Dolby® AC3 Surround Sound format; and combining the compressed audio and video information into a single, encoded data stream for producing a "master" and generating copies (i.e., laser-readable discs) therefrom.

[0006] FIG. 1 depicts a block diagram of a typical DVD mastering system 100 for effectuating some of the steps described above. Inputs from a master video tape 102 and a master audio tape 104 are provided to a variable bit rate (VBR) encoder 106 and a suitable audio encoder 108, respectively. The encoders 106 and 108, in turn, are managed via content/quality control block 110 so as to provide compressed and encoded video and audio to a multiplexer/formatter 112 for generating a combined audio/video data stream. An emulator 114 is provided to simulate the playback of the data stream. A master disc 116 is then created using the "image" of the DVD data stream which may have been written to a data tape beforehand. Using replicators, a content provider may mass-produce DVD discs for market consumption by "pressing" the master 116.

[0007] The digital information on a DVD disc is organized in a well-known hierarchical file structure comprising such levels as program chains (PGCs), chapters, group of pictures (GOPs), etc., which allows not only a plethora of desirable features such as, for example, multiple aspect ratios, multiple language tracks and subtitles, multiple camera angles, and rudimentary forms of parental control, but also a presentation technique for allowing and facilitating user interactivity via an overlaid graphics tool, called an on-screen display (OSD) tool.

[0008] FIG. 2 depicts the block diagram of a typical DVD player 200 for the playback of a DVD disc 202. A disc reader mechanism is provided with the player 200, which mechanism comprises a motor 204 for spinning the disc 202 and a laser 206 that reads the digital information therefrom. Typically, the laser 206 is operable in the "red" portion of the visible light spectrum. A DVD-compliant digital signal processor (DSP) 208 is provided in a feedback arrangement with the disc reader mechanism for translating the laser pulses generated from the laser 206 back into electrical form.

[0009] At the heart of the player 200 is a digital audio/video (AV) decoder 210 that receives electrical signals from the DSP 208 for further processing. The AV decod-

er 210 comprises several important functional blocks which act on the received electrical signals at various stages of processing. The composite signal information is initially separated by a de-multiplexer 212 which provides video content stream to a video decoder 214, compressed bitmaps to a sub-picture processor 216, and audio content stream to an appropriate audio decoder 218. The sub-picture processor 216 provides the processed sub-picture information to an OSD graphics tool 220. A video multiplexer 222 controllably presents the decoded video information from the video decoder 214 and the output from the OSD graphics tool 220 to an appropriate TV signal encoder 224 (compliant with, for example, the National Television Standards Committee (NTSC) signal format, or the Phase Alternate Line (PAL) signal format), which then provides a suitable TV signal to a TV (not shown) for playback. The decoded audio information from the audio decoder 218 may be provided to an appropriate audio system which may or may not be integrated with the TV. A microcontroller 226 is provided as part of the DVD player 200 for supervising the operation thereof. As can be readily seen, the microcontroller 226 may be engaged by the user via a remote control or front panel 228 for translating user inputs into commands for the audio/video decoder 210 and/or the disc reading mechanism of the player 200.

[0010] It can be appreciated that the DVD technology comprising the DVD discs and suitable players therefor provides significant advances over conventional media for content presentation to viewers. However, it is also known that while the DVD mastering standards have been extant for some time, the content providers who typically supply the DVD-compliant content in the form of "titles" substantially control the various available presentation settings for a particular title. It can be readily recognized that viewers who may desire to change some or all of the available settings for a particular title in order to customize the content presentation to suit their different needs and tastes may have to be provided with a mechanism for doing so in a user-friendly manner. Further, it should be apparent that the need for such mechanism is especially pronounced in a convergence device.

[0011] In addition, although DVD technology offers a wide-ranging menu of choices and options to viewers, in some instances it may be considered rather deficient. For example, current DVD players are limited in allowing users to specify their preferences which include, for example, parameters such as audio language, subtitle language, picture aspect ratios, screen saver options, OSD options, etc. In a typical implementation, a DVD player allows user preferences to be primarily specified only globally. Accordingly, one problem that is quite apparent is that while a user may prefer one set of preferences for most discs, he may prefer a different set of preferences for a particular disc or title. For instance, a user may prefer the "pan and scan" video presentation style in general, but in the case of a particular movie which

features, as an example, panoramic battle scenes, "letter box" aspect may be preferred. It can be seen that by using existing DVD players, the user would have to override his global preference setting or settings (also referred to as value or values) each time that particular disc is played back.

[0012] Another problem that has been known for some time is that in current DVD players it is extraordinarily difficult for users to interrupt the playback of a disc or title, watch another disc and return to the place where the first disc was interrupted and resume the viewing thereof. Similarly, it is quite difficult in existing DVD implementations to find and tag a favourite scene in a program for future reference such that a subsequent playback of the title could resume therefrom, unless that scene happens to be located at the beginning of a chapter.

[0013] Yet another, perhaps more vexatious, deficiency in current DVD technology relates to parental management of content presentation. It is known that the DVD specification provides a definition for a parameter called "Playback with Parental Management" and multiple parental levels (for example, *Kid Safe*, *Theatrical*, *Adult*, etc.) are typically defined. Further, parental management is typically accomplished by comparing the user-configurable player parental identity value to the value provided in the parental ID field which may typically be present in each program chain contained in a title. It can be readily appreciated that problems arise when a content provider either does not provide a value in the parental ID fields at all, or when the user is dissatisfied with the available parental levels and would like to customize the presentation of the content in accordance with his particular subjective decisions.

[0014] Therefore, based on the foregoing, it should be understood by those skilled in the art that there is a need for a simple yet effective solution that addresses these shortcomings in current implementations of DVD technology. Although several DVD systems presently exist, no current system is known to have all of the advantages and novel features of the present invention, described and claimed hereinbelow, which advantageously provides systems and methods for overcoming the above-mentioned deficiencies.

[0015] In one aspect, the present invention is drawn to system of the type including a display monitor, comprising: a video source for providing a program sequence to be viewable on the display monitor, wherein the program sequence includes at least one parameter for affecting the presentation thereof and is identifiable by an identity tag; a computer subsystem for managing the presentation of the program sequence on the display monitor, the computer subsystem comprising a storage unit and a processing unit; and a database structure supported by the computer subsystem, wherein the database structure comprises a record associated with the identity tag, the record including at least one user-specified value for customizing the presentation of the pro-

gram sequence. In a preferred embodiment, the user-specified value comprises at least one of a preference setting, an auto-resume bookmark or a specific-position bookmark.

[0016] In another aspect, the present invention relates to a method of customizing the presentation of a program sequence in a device system having a persistent storage unit, wherein the program sequence includes at least one parameter affecting the presentation thereof, comprising the steps of; identifying the program sequence with an identity tag; and creating a record in the persistent storage unit, the record comprising a preselected value, wherein the record is associated with the identity tag.

[0017] In yet another aspect, the present invention is also directed to a method of censoring a program sequence provided by a DVD source, comprising the steps of: marking a first location in the program sequence responsive to a first input by a user, wherein the first location is positioned relative to a start time associated with the program sequence; incrementing a program time associated with the program sequence; marking a second location in the program sequence responsive to a second input by the user; and storing time values associated with the first location and the second location in a record supported by a storage medium, wherein the record is indexed to the user.

[0018] A more complete understanding of the present invention may be had by reference to the following detailed description when taken in conjunction with the accompanying drawings in which:

FIG. 1 illustrates a conventional DVD mastering system;

FIG. 2 depicts a block diagram of a conventional DVD player adapted for playing a DVD title;

FIG. 3 depicts the block diagram of an exemplary convergence device system including a DVD source, wherein the teachings of the present invention may be utilized;

FIG. 4 depicts a flow diagram relating to an exemplary embodiment of a method for customizing content presentation in accordance with teachings of the present invention;

FIG. 5 depicts an exemplary database structure provided in accordance with the teachings of the present invention for customizing content presentation;

FIGS. 6A and 6B depict a flow diagram for an exemplary embodiment of a scheme for censoring content in a program sequence or title; and

FIG. 7 illustrates an exemplary database structure relating to censor time data for creating multiple viewing sequences in a program sequence in accordance with the teachings of the present invention.

[0019] Referring now to the drawings wherein like or

similar elements are designated with identical reference numerals throughout the several views, and wherein the various elements depicted are not necessarily drawn to scale, and, in particular, to FIG. 3, there is shown a block diagram of an exemplary convergence device system (or, an electronic convergence device) 300 provided wherein the teachings of the present invention may be advantageously practised. It should be appreciated by those skilled in the art that this block diagram is not necessarily intended to schematically represent specific modules of hardware or any particular data or control paths therebetween.

[0020] The convergence device system 300 includes a first subsystem, display monitor subsystem 310, operable to receive and display thereon display signals (or, indications thereof) received from a second subsystem, computer subsystem 315. Although not depicted, the subsystem 315 comprises a processor unit coupled to a storage unit, and may further preferably contain a communication port for enabling communication between the convergence device system 300 and a network 320.

[0021] Continuing to refer to FIG. 3, the network 320 can be understood to be any network, for example, a Local Area Network, a Metropolitan Area Network, a Wide Area Network, or the Internet. The computer subsystem 315 is connected to at least one convergence functionality module 330 that is adapted to receive and/or provide various combinations of composite and/or RF and/or video and/or audio and/or graphics and/or data signals. For example, the module 330 may comprise a receiver for receiving TV signals in any form, such as the NTSC form or the PAL form, via any medium, digital or analog, such as a cable system, a Digital Satellite System, or a network broadcast medium. In another embodiment, the module 330 may comprise a consumer/home electronics unit adapted to be integrated with the computer subsystem 315 in addition to a TV receiver. For example, a video gaming unit or a DVD unit may be provided such that the outputs (video, audio, or both) of the units are controlled or modulated by the computer subsystem 315. A video controller service in the subsystem 315 may be responsible for managing these outputs such that appropriately modulated (or decoded or processed) display signals (or, indications thereof) are selected to be forwarded to drive suitable output devices, for example, the display monitor subsystem 310 or an audio output device (not shown).

[0022] Although the module 330 and the subsystem 315 are shown to be two separate yet interconnected entities, the module 330 may in some embodiments of the present invention be integrated into the subsystem 315. Such an integrated subsystem may comprise in a single housing one or more video sources (or consumer/home electronics units including receivers for TV signals, gaming units, VCRs, video/laser disc units, video telephony units etc.), the video control service for managing and selecting among these sources and for gen-

erating appropriate display signals (or, indications thereof) to be provided to suitable output devices, and the processor and storage units.

[0023] Still continuing to refer to FIG. 3, the convergence device system 300 may be operable with an input device 325 which may comprise any of the following: remote control units, remote track-ball/mouse devices, remote pointing devices, wireless or wired keyboards, keyboards integrated with pointing devices, track-balls and the like. Further, although not shown in this FIG., it should also be understood that the convergence device system 300 may contain such hardware modules as one or more power units for supplying power thereto, TV tuner boards, CD-ROM players, floppy drives, printer ports, video ports, et cetera.

[0024] Referring now to FIG. 4, there is shown a flow diagram of a presently preferred exemplary embodiment of a scheme provided in accordance with the teachings of the present invention for customizing the presentation of DVD-compliant content. As has been described in the Background, current DVD implementations do not allow for content customization by users by way of setting modifiable preferences relating to one or more parameters. As is known in the art, these parameters, which affect the presentation or playback of the DVD title, may comprise such things as audio language, subtitle language, picture aspect (e.g., 4 x 3, or letter-box, or pan and scan), screen saver options, OSD options, et cetera. In accordance with the teachings of the present invention, a persistent storage unit associated with a processing unit, for example, the computer subsystem 315 shown in FIG. 3, may be used to create a database structure for storing user-modifiable preference settings for each DVD disc or volume (or, title or program sequence) such that the next time when the disc is inserted into a DVD player, the user preferences would preferably automatically be applied so as to modulate the presentation of the DVD-compliant content. It should be appreciated that the DVD player may preferably be integrated into a convergence device system, for example, the system 300, as described above in reference to FIG. 3.

[0025] As provided in step 402, a DVD title or volume or program sequence is preferably identified with an identity (ID) tag. It should be appreciated that the ID tag may also be a computationally generated value based, at least in part, on the content itself. One or more records may be created, which may preferably be indexed to the ID tag (step 404), such that the entries in the record or records correspond to the user selected values for one or more parameters affecting the content presentation. A graphical user interface (GUI) may be provided for facilitating user interactivity whereby one or more user preferences may be selectively changed at any point during the playback of a volume or program sequence (step 406). These modifications are preferably written back to the record relating to the volume ID tag in the persistent storage unit, as provided in step 406.

[0026] FIG. 5 depicts an exemplary embodiment of a record in a database structure provided in accordance with the teachings contained herein. Those of ordinary skill in the art should realize that the exemplary database structure may be implemented in any known fashion and may contain one or more records. Further, multiple records may be indexed to the same disc volume ID tag 502. In this exemplary embodiment, a default settings portion 504 may also preferably be provided so that a user can force the DVD player system, for example, the convergence device system 300, back to his global preferences (that is, those settings applicable to all DVD volumes) by selecting an appropriate option in the GUI. As can be seen in this FIG., the default settings portion 504 may comprise, for example, a parental level portion 510, language portion 512, aspect ratio portion 514, angles portion 516, and a subtitle language portion 518, in addition to various other parameters heretofore known and unknown and not depicted herein. Further, along with various preference values, a user can also set positional entries in the exemplary database structure. It should be appreciated that these positional entries may be referred to as bookmarks and they serve essentially the same function for a DVD disc as a conventional bookmark does for a book. A DVD bookmark, in accordance with the teachings of the present invention, may preferably contain the information needed to resume viewing at a previously marked position on a particular disc or volume.

[0027] For example, the exemplary record indexed for the disc volume ID 502 may also comprise a previously set user preferences portion 506 and a currently set user preferences portion 508, each of which may comprise an "auto-resume bookmark" (ARB) 520 and a "specific-position bookmark" (SPB) 522 in accordance with the teachings of the present invention. The ARB 520 relates to a positional entry, which may preferably be automatically set, for the current position in a disc volume prior to ejecting or stopping the playback when a *stop* or *eject* command is issued by the user while viewing a DVD volume or program sequence. Accordingly, the ARB 520 may preferably exist only for previously viewed disc volumes. It can be appreciated that the problem of being able to resume viewing a disc or volume where a user left off, is effectively solved by utilizing an ARB in accordance with the teachings of the present invention. After setting an appropriate ARB in a disc volume, the user could simply select a "resume play" option from the GUI after inserting the disc into the system.

[0028] Continuing to refer to FIG. 5, it should be understood that although only a single SPB 522 is illustrated herein, there may be several bookmarks in a disc volume for marking a plurality of particular scenes (or, favourite scenes) contained therein. These scenes need not be limited to those found at the chapter boundaries in the program sequence of the disc volume. The SPB 522, accordingly, is preferably selected by a user by issuing a "set bookmark" option in the GUI. Further,

optionally, the user may also enter a descriptive comment for a selected SPB. Subsequently, when playing back a disc with bookmarks, the user can browse the SPBs within the GUI which have been previously set. When a particular SPB is selected, viewing resumes at that position (relative to its chapter, time in chapter, including parameters such as angles, et cetera) indicated thereby.

[0029] FIGS. 6A and 6B depict a flow diagram for an exemplary embodiment of a method of content censoring by providing for multiple viewing sequences within a program sequence or title in accordance with the teachings of the present invention. It should be understood that the exemplary scheme described herein may preferably be implemented on a converged platform such as the convergence device system 300 shown in FIG. 3.

[0030] After determining that a title or volume contains inadequate parental management information or none at all (decision blocks 602 and 604), a dominant user (typically a parent with initial access privileges) who is desirous of censoring some of the content in accordance with his needs, starts from the beginning of the program sequence (which may contain one or more program chains or PGCs) (step 608). By interacting with the convergence device system 300, preferably through a combination of alternative mechanisms including remote control, pointing device, remote keyboard and GUI, the user may specify which sections of a title are to be restricted from unauthorized access for one or more subordinate users (for example, children). As provided in step 610, using a list of time-based bookmarks that are referenced or indexed from the start time of the program sequence, a separate viewing sequence for each subordinate user is then created.

[0031] FIG. 6B provides an amplified flow diagram for this particular step 610 in greater detail. Once material to be censored is encountered (decision block 704), a censor mode is turned on, preferably by using an interactive OSD (IOSD). It may be appreciated that other user input mechanisms such as, for example, pressing a key on the remote control or keyboard may also be employed. A censor start-time is bookmarked responsive to the censor mode that has been turned on (step 706). When the dominant user determines that the end of the material to be censored has been reached (decision block 708 and step 710), the censor mode is turned off and a censor stop-time is accordingly bookmarked as provided in step 712. It should be appreciated that although only one censor block is illustrated herein, multiple censor blocks can be created for a user by traversing the entire program sequence and appropriately turning on and off the censor mode and creating censor start-time and stop-time bookmarks. After creating and appropriately storing the necessary censor bookmarks for the user, the flow control subsequently returns (step 714) to decision block 612 in FIG. 6A to repeat the censoring process for additional users. In a presently pre-

ferred exemplary embodiment, the censored areas are accordingly recorded as start- and stop-time values relative to the start time of a specific title and preferably apply to all angles for the censored time periods within the title. By using the GUI, the user may optionally review and edit the list of censored title sections.

[0032] Referring now to FIG. 7, there is shown an exemplary data structure, preferably supported by the computer subsystem 315 of the convergence device system 300, for storing a censor time data record 806 that is indexed to a user ID 804 for a particular disc volume (title or program sequence) 802. Depending on the number of users, including dominant users, multiple user IDs may be created for the disc volume 802, each ID being indexed to a specific censor time data record 806. As can be seen, the censor time data record 806 preferably comprises one or more censor blocks, for example, censor blocks 808 and 810, each including a censor start-time and censor stop-time values.

[0033] The censored playback of the disc volume 802 is accomplished by monitoring the time in the title and comparing it to the censored list or censor time data record 806. When the start of a censored block is reached, the system skips ahead to the end of the block and resumes play. It should be appreciated that a privileged user can disable censored playback for a particular disc for a single viewing session or permanently via the GUI. An access control scheme, for example, a personal identification number (PIN) scheme, may be used for controlling privileged access for such capability. Furthermore, a user may optionally insert less offensive or more agreeable content for the duration of a censor block provided from other sources.

[0034] Based on the foregoing, it should be realized that the present invention advantageously provides a preferences or settings database structure that is preferably stored in a persistent storage unit, which structure is preferably automatically maintained such that records contained therein relating to user preference values are indexed to a particular disc volume. Each time a user chooses to change or override a previously set preference value, that change or override is recorded in the database structure and indexed to the current disc volume ID tag. Accordingly, the next time that disc volume is inserted, the new value or values will be preferably automatically applied. Also, positional entries are provided in accordance with the teachings of the present invention to facilitate automatic resume of a disc where it was left off and to select playback from a specific or favourite location in the program sequence or title.

[0035] It should further be appreciated that the present invention also provides a censor time database structure comprising various viewing sequences for different users (including adults) in order to facilitate more individualized parental management of content presentation. The viewing sequences are preferably based on timed bookmarks for tagging objectionable material, which bookmarks may be located at any place in the

program sequence. Thus, it is not necessary that a censor block or segment be co-terminus with the end or beginning of a PGC.

[0036] Although only certain embodiments of the present invention have been illustrated in the accompanying Drawings and described in the foregoing Detailed Description, it will be understood that the invention is not limited to the embodiments disclosed, but is capable of numerous rearrangements, modifications and substitutions without departing from the spirit of the invention as set forth and defined by the following claims. For example, notwithstanding the inclusion of the Detailed Description of a convergence device system, it should be understood that the teachings of the present invention may also be practised in a computer system with a suitable adapter or expansion card. Further, persistent storage used for supporting the database structures in accordance herewith may include any magnetic, optical, opto-electronic, electronic or non-volatile memory components. It may be appreciated that the preferences data and censor time data may be organized in a variety of records and data types. The censor start- and stop-time bookmarks may be offset from a start time associated with a program sequence or relative to each other. Accordingly, it should be realized that all these and other variations are contemplated to be within the ambit of the present invention, the scope of which is limited solely by the following claims.

Claims

1. A system of the type including a display monitor, comprising:

a video source for providing a program sequence to be viewable on said display monitor, wherein said program sequence includes at least one parameter for affecting the presentation thereof and is identifiable by an identity tag; a computer subsystem for managing the presentation of said program sequence on said display monitor, said computer subsystem comprising a storage unit and a processing unit; and a database structure supported by said computer subsystem, wherein said database structure comprises a record associated with said identity tag, said record including at least one user-specified value for customizing the presentation of said program sequence.

2. The system as recited in claim 1, wherein said video source comprises a Digital Versatile/Video (DV) Disc and a playback unit therefor, and wherein said at least one user-specified value relates to said at least one parameter.

3. The system as recited in claim 1 or claim 2, wherein

said computer subsystem is operable with a user input device and a graphic user interface such that at least a portion of said record is modifiable by a user.

4. The system as recited in any of claims 1 to 3, wherein said user-specified value in said record comprises an auto-resume bookmark for marking the location in said program sequence where the playback thereof is interrupted such that the playback can be resumed at a later time from said auto-resume bookmark.

5. The system as recited in any of claims 1 to 3, wherein said user-specified value in said record comprises a specific-position bookmark for marking a predetermined location in said program sequence such that the playback thereof can be resumed at a later time from said specific-position bookmark.

6. A method of customizing the presentation of a program sequence in a device system having a persistent storage unit, wherein said program sequence includes at least one parameter affecting the presentation thereof, comprising the steps of:

identifying said program sequence with an identity tag; and
creating a record in said persistent storage unit, said record comprising a selected value, wherein said record is associated with said identity tag.

7. The method as recited in claim 6, wherein said selected value in said record is associated with said at least one parameter and is applied for the playback of said program sequence.

8. The method as recited in claim 6 or claim 7, further comprising the steps of:

modifying said record responsive to a user input to generate a new record;
storing said new record in said persistent storage unit; and
applying said new record when said program sequence is played back at a later time.

9. The method as recited in any of claims 6 to 8, wherein said selected value in said record is associated with a location bookmark for marking the position in said program sequence where the playback thereof is interrupted such that the playback can be resumed at a later time from said location bookmark.

10. The method as recited in any of claims 6 to 8, wherein said selected value in said record is asso-

ciated with a predetermined position in said program sequence such that the playback can be resumed at a later time from said predetermined position.

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11. An interactive system operable with a DVD source, said source at least for playing back a DVD program sequence, wherein said program sequence includes a parameter affecting the playback, comprising:

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means for identifying said program sequence with an identity tag; and
means for creating a record in said persistent storage unit, said record comprising a selected value, wherein said record is associated with said identity tag.

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12. The interactive system as recited in claim 11, further comprising means for modifying said record responsive to a user input to generate a new record.

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13. A method of censoring a program sequence provided by a DVD source, comprising the steps of:

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marking a first location in said program sequence responsive to a first input by a user, wherein said first location is positioned relative to a start time associated with said program sequence;
incrementing a program time associated with said program sequence;
marking a second location in said program sequence responsive to a second input by said user; and
storing time values associated with said first location and said second location in a record supported by a storage medium, wherein said record is indexed to said user.

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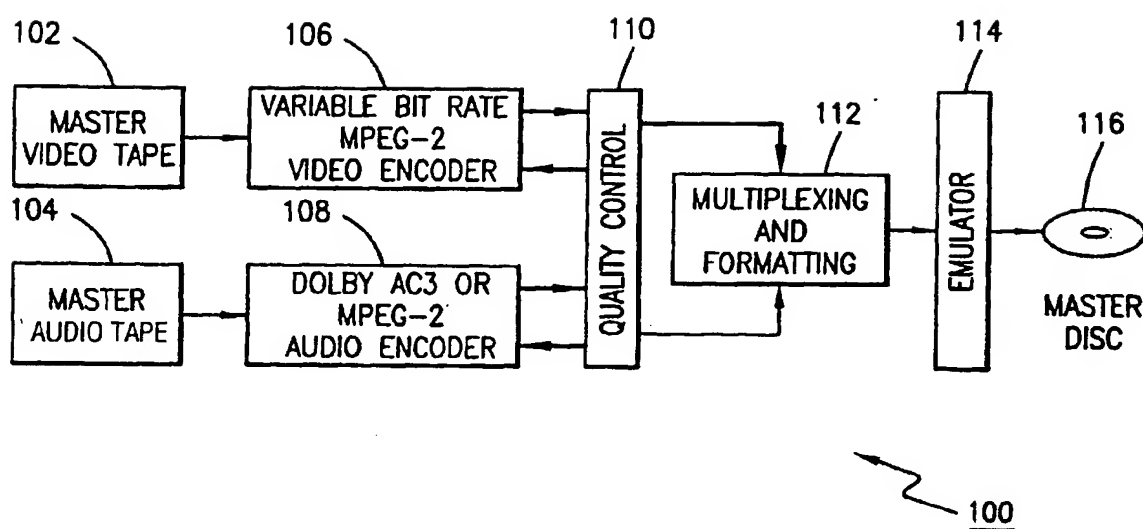
14. The method as recited in claim 13, wherein said second location is positioned relative to said start time associated with said program sequence.

15. The method as recited in claim 13, wherein said second location is positioned relative to said first location.

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**FIG. 1**

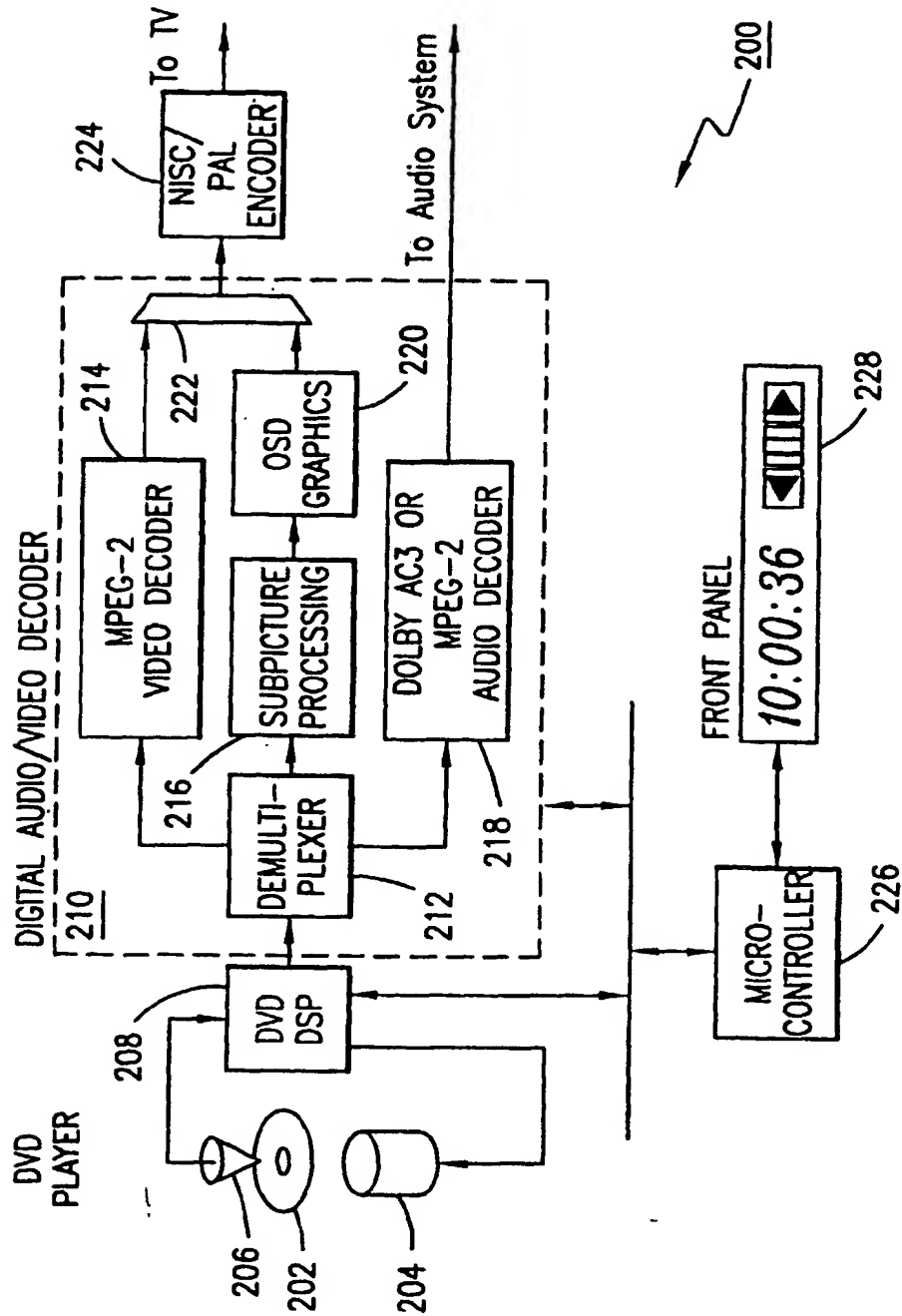
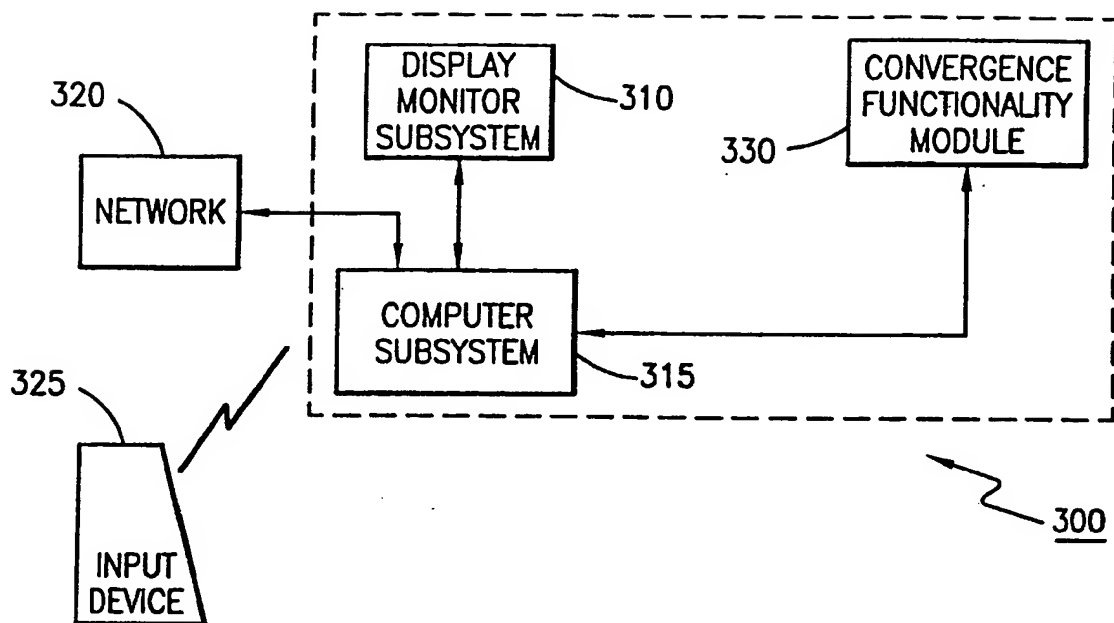
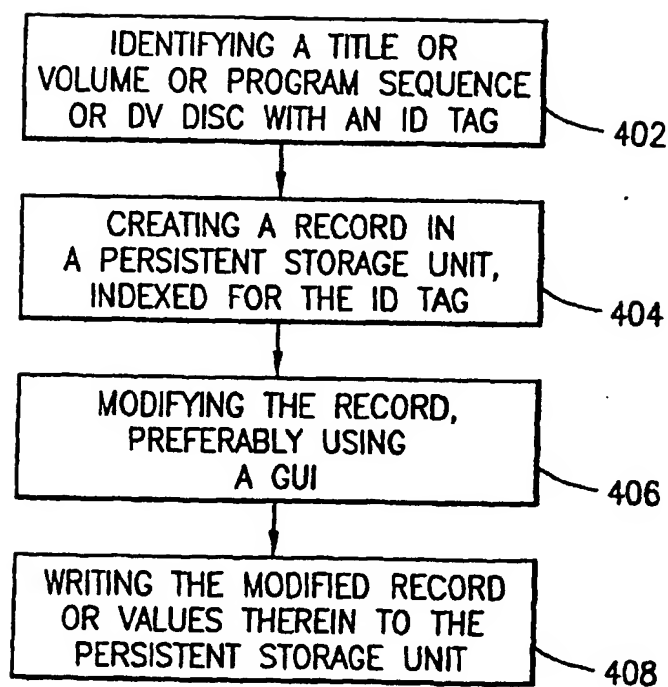


FIG. 2

**FIG. 3**

**FIG. 4**

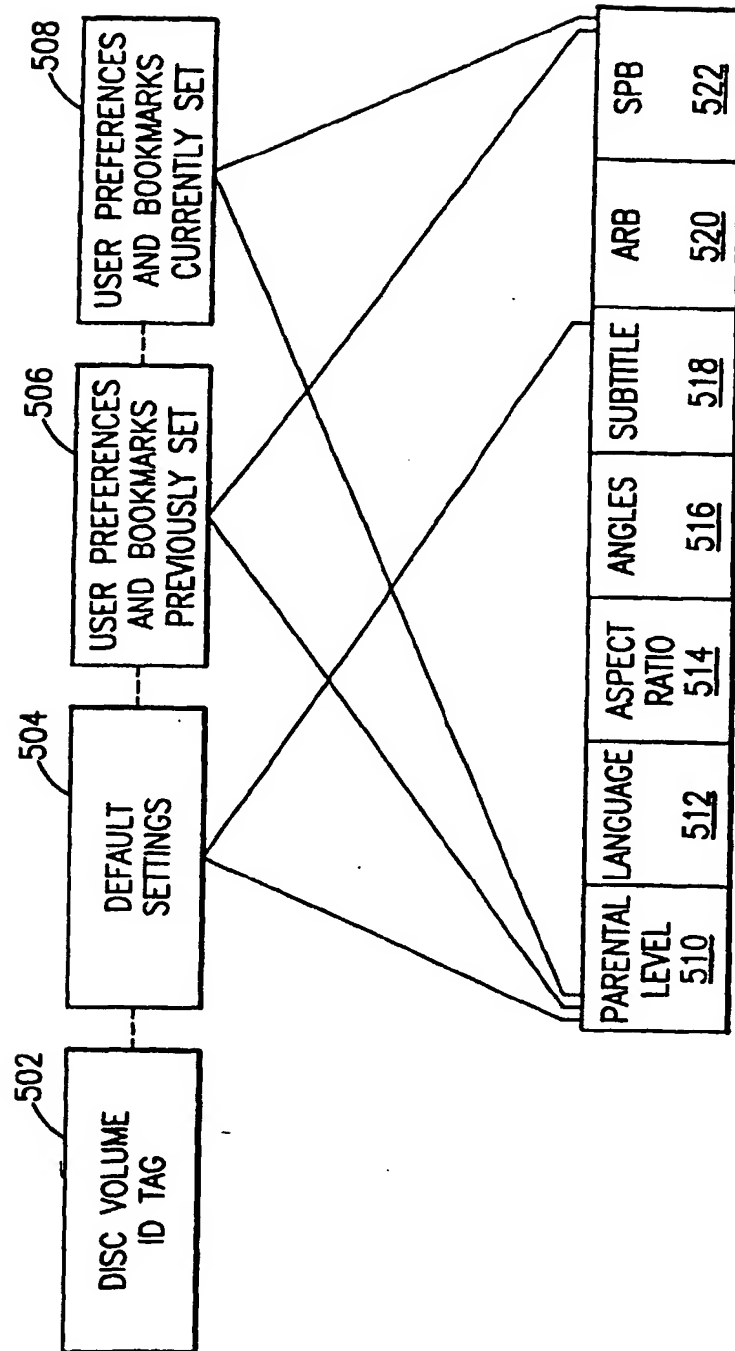
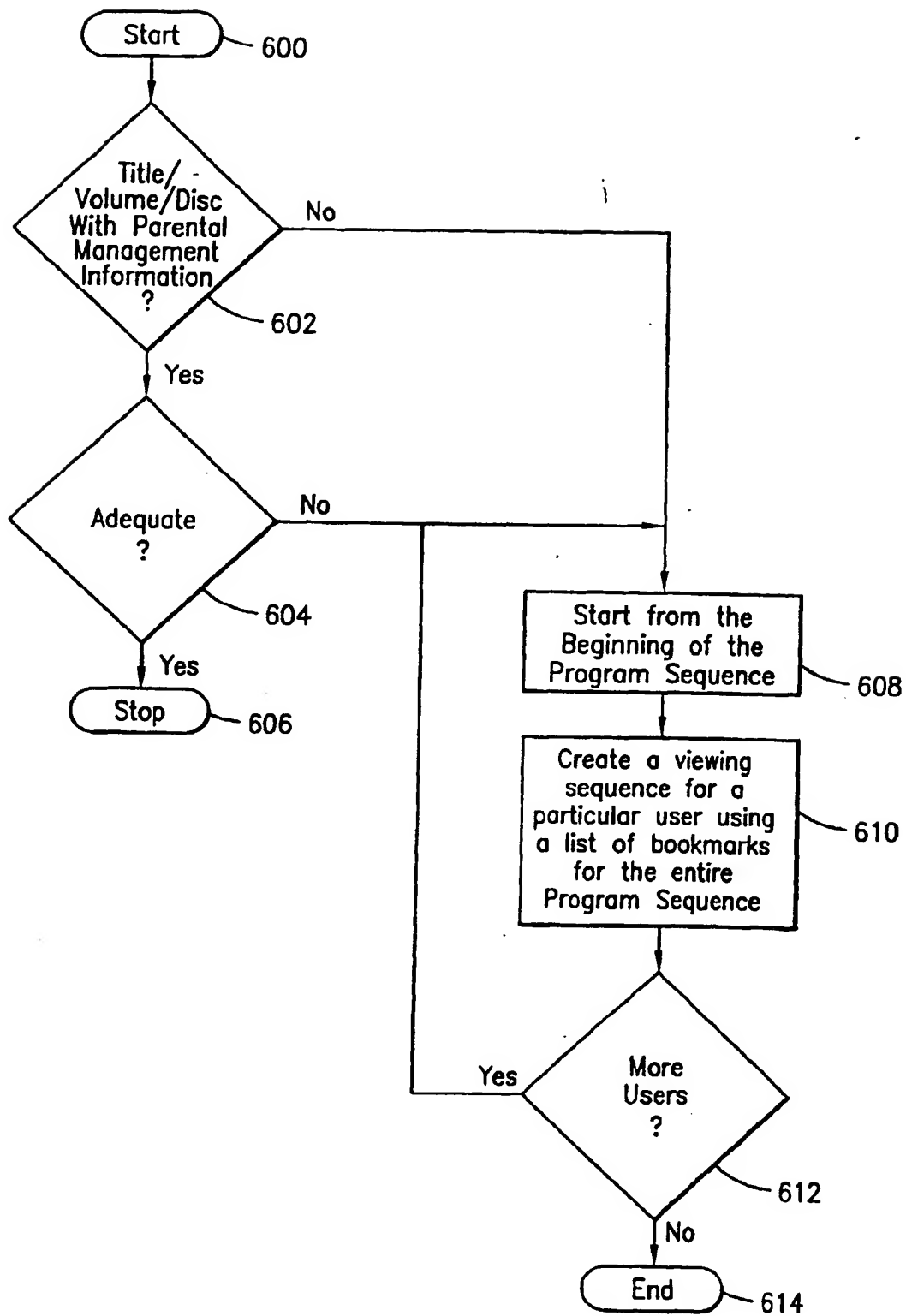
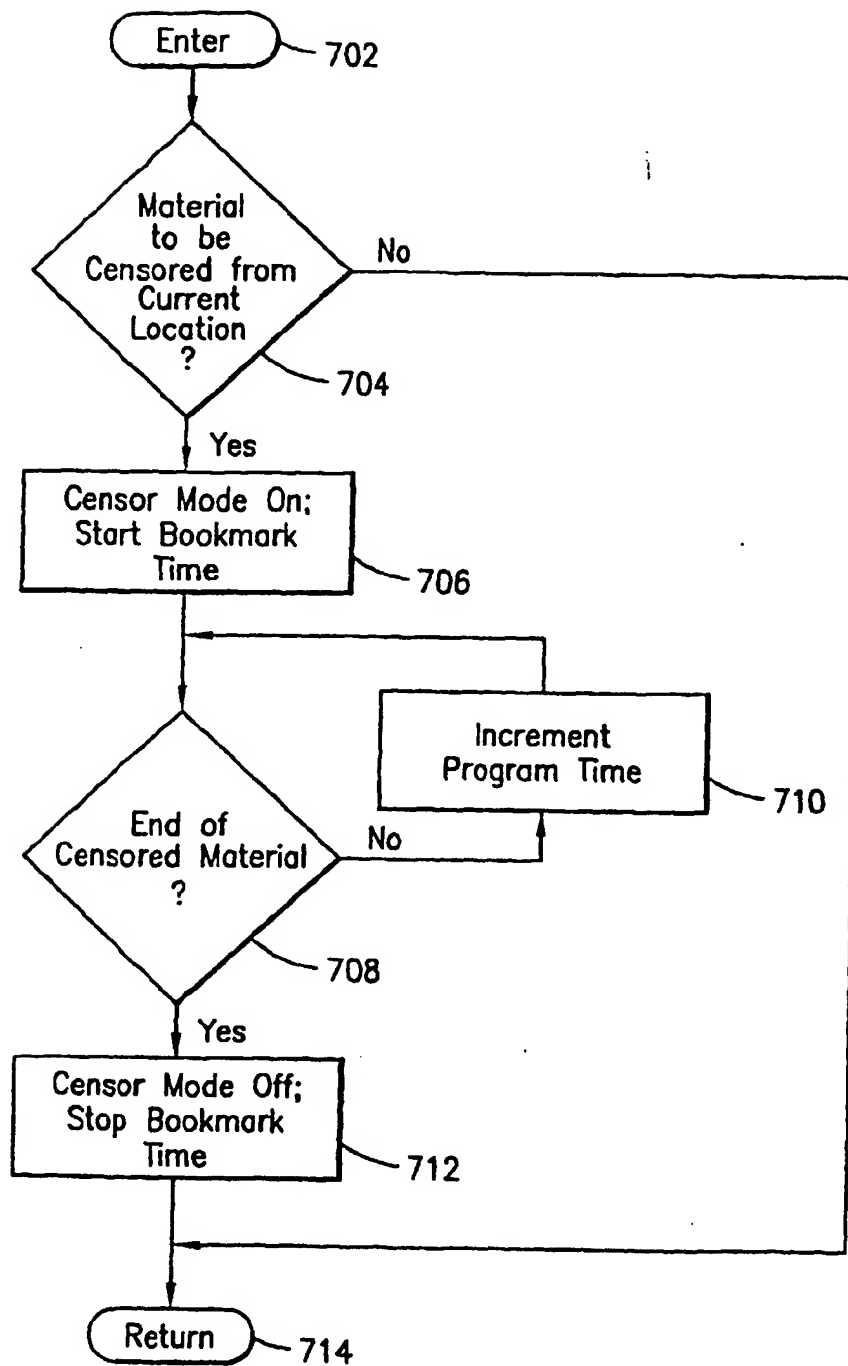


FIG. 5

**FIG. 6A**

**FIG. 6B**

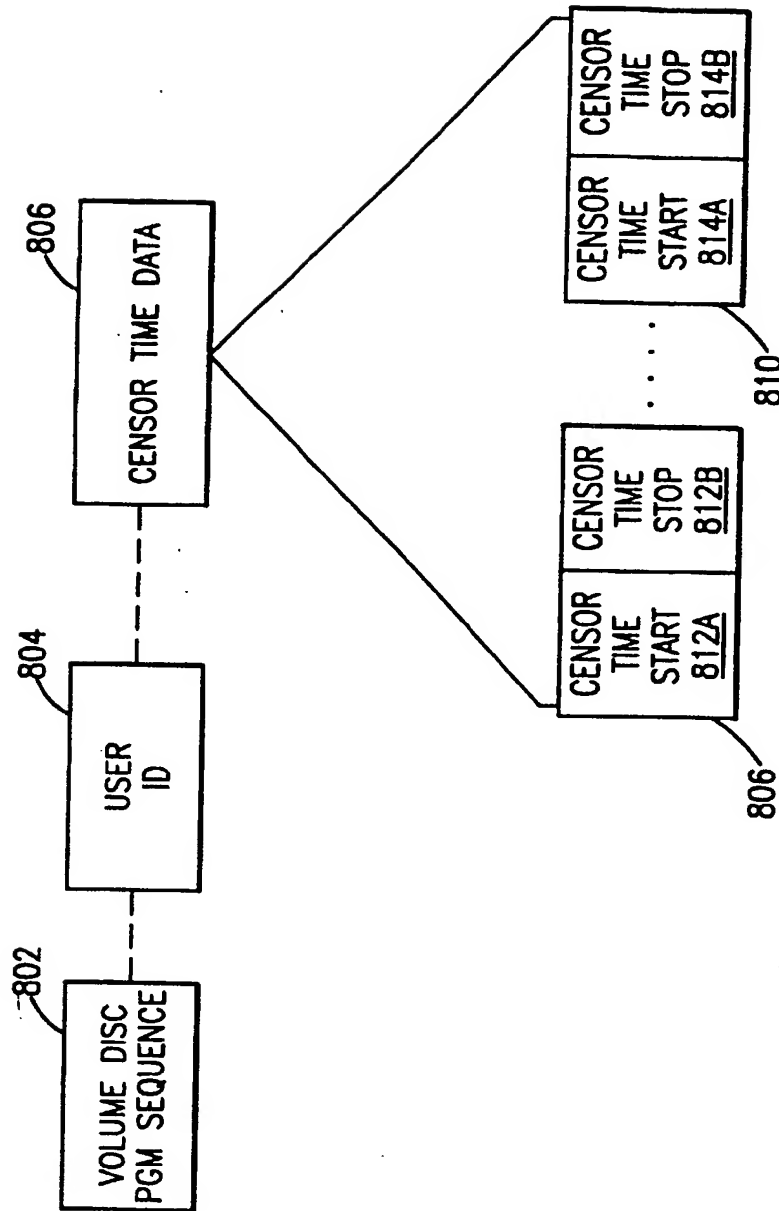


FIG. 7

(19)



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EUROPEAN PATENT APPLICATION

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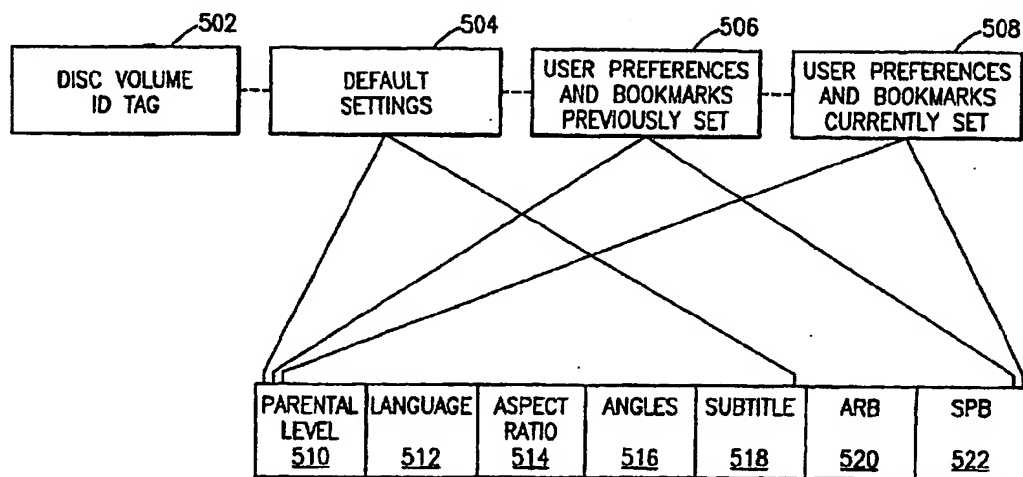
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(54) Customization schemes for content presentation in a device with converged functionality

(57) Schemes are described for customization of content presentation relating to a Digital Versatile/Video Disc source, which source is preferably integrated into a convergence device system. A user preferences or settings database is provided that is automatically maintained or supported by a computer subsystem, wherein

records containing user preference values are indexed to a DVD title or volume having an identity tag. Changed values are also stored and applied during the next playback of the title. The present invention also provides a censor block database structure containing individualized viewing sequences from a title for different users with different levels of censorship.

**FIG. 5**



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